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# Software Requirements Specification

for

**NYUTRADE**

Version 1.0 approved

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## Revision History

Name	Date	Reason For Changes	Version

# **1. Introduction**

## **1.1 Purpose**

The purpose of this document is to present a detailed description of NYUTRADE, a website that will act as a centralized system for students' sale of items and aid in promoting student-led businesses. The document will outline the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli.

## **1.2 Intended Audience and Reading Suggestions**

This system is a student business platform and it is restricted to the NYU Abu Dhabi campus (only for NYU students). This has been implemented under the guidance of college professors. This project is useful for the entire student community of NYUAD and intends to consolidate the multiple Facebook groups into one platform.

## **1.3 Product Scope**

There are various NYUAD related groups across facebook, such as Room of Requirements (RoR), female RoR and NYUAD Free & For Sale which have a lot of posts of students selling their items or promoting their businesses. This system aims to create a centralized system as all the posts are scattered throughout the three groups and often overshadow more important information. Furthermore, the buyer and the seller often do not have a chance to connect with each other. Such a system can help link the buyer and the seller and be mutually beneficial.

## 2. Overall Description

### 2.1 Product Perspective

This system is a new, self-contained product designed as an interface between potential buyers and potential sellers of products sold at NYU Abu Dhabi. The system consists of a web-based platform and a backend database. The website is primarily divided into 2 parts: buying and selling. The database stores the login information and the product listings. The user interacts with the website.

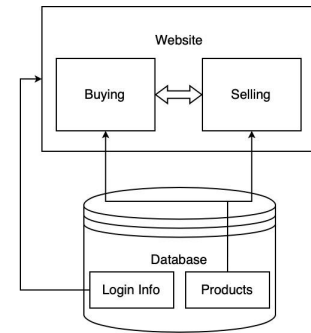


Figure 1: Basic System Diagram

### 2.2 Product Functions

- Users must register / log in (through either SSO or Google+).
- Users can post items they wish to sell. For each item, users fill out a product description.
- Users can post services they provide (including small on-campus businesses) as products.
- Users can post about sales of other NYU-AD specific products such as Falcon Dirhams or Campus Dirhams.
- Users can choose to make their listing with a set price or via a bidding system.
- Users can search for products and services via keywords.
- Products and services listed on the website can be classified into multiple categories.
- Products and services can be filtered based on price and seller-listed attributes (e.g. size, color etc).
- Users can request items (e.g. “is anyone selling a white dress?”) and find sellers of the item.
- Users can contact one another through a chat system (or via contact info listed on their profile).
- Users can rate and view previous ratings of their experience with the buyer/seller.
- Users can choose to sell anonymously [or potentially to a certain subsection of users].
- Users can choose to be notified of new postings.
- Admin can choose to remove products and users if they break community usage guidelines.

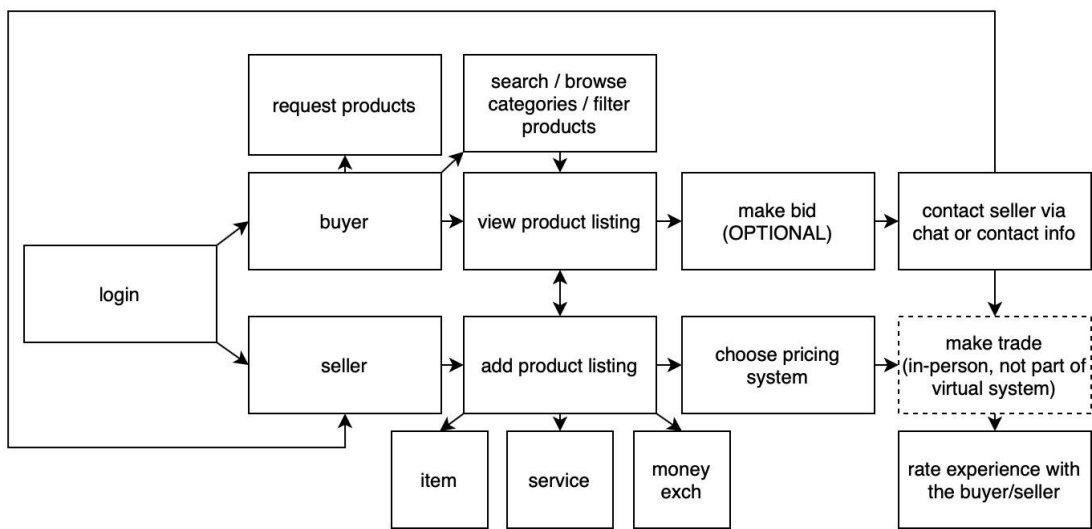


Figure 2: User Functions Schematic

## 2.3 User Classes and Characteristics

User (both Buyer & Seller):

- Login to the website (via SSO or Google+).
- Use the chat feature to contact other buyers/sellers.
- Rate other buyers & sellers.

User as Buyer:

- Browse through products.
- Find products via categories.
- Filter products depending on specifications.
- Request products.

User as Seller:

- List product or service with description.
- Pick pricing model – fixed price or bidding system. Start & end bidding.
- Mark products as sold.
- Delete listings

Admin:

- View all users and listings.
- Remove spam users.
- Remove spam listings.
- Ensure sold products are deleted from the database.
- Sort issues regarding spam ratings.

## 2.4 Operating Environment

The system is designed as a website and is thus expected to work cross platform, for Macintosh, Windows, Linux, as well as for IOS and Android.

## 2.5 Design and Implementation Constraints

1. Database size indeterminate. Cannot predict the exact database size requirement at the moment. May need updating depending on how many users adapt the new system.
2. Will need to ensure privacy is maintained with regards to login credentials.

## 2.6 User Documentation

1. Basic video tutorials regarding the processes will be provided.
2. Online help can be requested via chatting with the admin.

## 2.7 Assumptions and Dependencies

1. To login via SSO, permission is required from the university. Will likely have to be replaced with an approval system, where net id must be provided and the admin approves the users. (May automate this process.)

## 3. External Interface Requirements

### 3.1 User Interfaces

Login Screen:

1. Will contain fields for authentication – username & password.
2. Will contain buttons for login and for ‘forgot password’.
3. Messages display in red upon encountering errors.

Home Screen (post-authentication):

1. Tiles or posts containing items for sale. (Will decide which later).
2. ‘Contact seller’ buttons on each tile / post.
3. Filter option on the sidebar with checkboxes to select desired filters.
4. Category buttons on the menu bar.
5. Button to create a post.

Posting Screen (when button to create a post is clicked):

1. Option to choose between selling and requesting.
2. If selling:
  - a. Form displayed with fields to enter the details such as name, category, ...
  - b. Radio button to choose between set price and bidding system:
    - i. If set price: field to enter price appears
    - ii. If bidding system: field to enter base price appears
3. If requesting:
  - a. Field to make a simple post. (Like a Facebook post).
4. Post button at the bottom.

Chatbox:

1. Chat messages highlighted depending on sender, either by color or by displaying name.
2. Button to attach image present.
3. Button to send the message.

For All Screens:

Panel at the bottom containing site information and buttons to the how-to-use guide and admin contact information.

## 3.2 Software Interfaces

The system would interact with the following software interfaces:

1. Database: While the database specifications have not been finalized at this time, the system will interact with a database to upload and retrieve data regarding posts, chats, etc.
2. Device: To upload images, the system will interact with the files on the device.
3. Calendar applications: To download the time alert, the system would interact with Calendar software.

## 3.3 Communications Interfaces

The system will interact with the following communication interfaces:

1. E-mail: The system will communicate with users via emails for notifications and account recovery.
2. Web browser and related interfaces: Since the system is a website, it would have to adhere to a multitude of web related network communication protocols, including HTTP and FTP. In light of the same, the system would have to deal with ensuring proper encryption and having adequately high data transfer rates.

# 4. System Features

## 4.1 Login.

### 4.1.1 Description and Priority

This feature allows users to login to the system. This feature has a high priority since every user must login to the system to access the functions and features. This feature has high benefit but also high risk since it contains personal details about users and requires high security.

### 4.1.2 Stimulus/Response Sequences

- Users must enter the registered username and password.
- System must authenticate users by checking the correct combination of username and password.
- System must provide a forgot password option.
- System must display an error if the wrong combination is entered. Must block account after 10 incorrect attempts.

### 4.1.3 Functional Requirements

- REQ-1: The system displays case-sensitive fields to enter username and password.
- REQ-2: The user enters username and password.
- REQ-3: The system verifies, using the database, the credentials.
- REQ-4: If correct credentials are entered, the system logs in and displays all features.
- REQ-5: If incorrect credentials are entered, the system displays an error. If more than 10 incorrect attempts are made, the system blocks the user. The user must contact the admin to be unblocked.

## 4.2 Product Posting

### 4.2.1 Description and Priority

This feature allows sellers to post items or services that they are interested in providing. Additionally, users can also post about items that they would like to buy. This feature is of high priority as it is the primary function of the entire website.

### 4.2.2 Stimulus/Response Sequences

- Users should be able to click on the “create a new post” button on the website.
- System should give an option to let the user select what kind of product they are providing or what kind of product they want to purchase.
- Users should be able to provide a description, picture and the price of the product.
- Admin should be able to remove the post if inappropriate.
- System should view the product in the available products listing

### 4.2.3 Functional Requirements

- REQ-1: The user clicks on the “create a new post” button
- REQ-2: The user selects what kind of product they are providing or are looking for.
- REQ-3: The user provides a description of the product.
- REQ-4: The user must be able to attach a picture of the product.
- REQ-5: The user clicks on the post button to confirm and post the product.
- REQ-6: The admin may remove the post if deemed inappropriate.
- REQ-7: Users can choose to post anonymously if they wish to in which case their name won't be shown on the post.

## 4.3 Product Browsing

### 4.3.1 Description and Priority

This feature allows users to go through the categories of available products and view all available products of that certain category. This feature has medium priority

### 4.3.2 Stimulus/Response Sequences

- User selects a category of product from the menu bar.
- The system displays all the available products of that category.

### 4.3.3 Functional Requirements

- REQ-1: The user should be able to select categories of a product from the menu bar.
- REQ-2: The system displays products only from the chosen category.
- REQ-3: The system should display ALL items available for purchase (if not category selected).

## 4.4 Product Filtering.

### 4.4.1 Description and Priority



This feature allows users to filter the listed products depending on the product description, e.g. size, color etc. This feature has a medium priority since while it is not absolutely necessary, it greatly benefits the user experience. The benefit is high while the cost and risk are low.

#### 4.4.2 Stimulus/Response Sequences

- When browsing for items, users can choose to apply a filter.
- Depending on the filter, the system only displays the applicable products.
- Users may change/remove filters.

#### 4.4.3 Functional Requirements

- REQ-1: The system displays potential filters with checkboxes.  
REQ-2: The user selects the desired filters.  
REQ-3: The system displays products that match the filters, depending on the product description.

### 4.5 Bidding System.

#### 4.5.1 Description and Priority

This feature allows a user to sell an item using a bidding system, in which different users can bid for the same item, and the item is sold to the user with the highest bid. This system has a low priority because the user still has an alternative method of selling the item.

#### 4.5.2 Stimulus/Response Sequences

- Users will search/browse for an item.
- System will display the base price set and the highest bid on the item.
- Users may place a higher bid.

#### 4.5.3 Functional Requirements

- REQ-1: The seller will be able to set a base price below which users cannot bid.  
REQ-2: The user will be able to bid on items available for sale.  
REQ-3: The system will display an error if a numerical value isn't entered or a value below the base price / current highest bid is entered.  
REQ-4: Users may choose to remove bids within a certain time period.  
REQ-5: The item is sold to the user with the highest bid.

### 4.6 Chat System.

#### 4.6.1 Description and Priority

This feature allows users to chat with other users. This feature has a medium priority since users can choose to contact one-another via email but this system is much more convenient. This feature has high benefit but also high risk since it contains private conversations between users and requires high security.

#### 4.6.2 Stimulus/Response Sequences

- Users must click on the product buyer/seller they wish to chat with via the listing.
- Users must be able to send text messages and picture files.
- Users may use a calendar pop-up to select date and time and download the iCal/GCal invite.
- Users may delete chats. Chats auto-delete after 2 weeks.
- Chats can be saved as .txt files by users if desired.

#### 4.6.3 Functional Requirements

- REQ-1: Users can pick another user to chat with via the post they are interested in.
- REQ-2: Users can send messages via the terminal.
- REQ-3: Users can choose to delete chats. System auto-deleted chats after 1 week.
- REQ-4: Users can download chats as .txt files.

## 4.7 Search

### 4.7.1 Description and Priority

This feature allows users to search for an item on the website through the search bar, for which the system displays all the available products that match the item description. This feature has high priority because without this, it would be impossible to search for a certain item.

### 4.7.2 Stimulus/Response Sequences

- Users must type out the item they are looking for on the search bar.
- The system should be able to display all available options that match the item description or name.
- The system displays “No match found” if there are no available items matching the search description.

### 4.7.3 Functional Requirements

- REQ-1: The user types out the item they are looking for on the search bar.
- REQ-2: The system displays all available options that match the item description or name.
- REQ-3: If no matches are found, the system displays “No match found”.

## 4.8 Product Requesting

### 4.8.1 Description and Priority

This feature allows buyers to request products, services and/or money. This has a medium priority since the system can function without the feature but this will greatly enhance functionality.

### 4.8.2 Stimulus/Response Sequences

- Users should be able to click on the “request new item” button on the website.
- Users must fill out a description.
- Sellers may contact the user via the chat button on the post.
- Admin should be able to remove the post if inappropriate.

#### 4.8.3 Functional Requirements

- REQ-1: The user clicks on the “request new item” button.
- REQ-2: The system prompts the user to fill out a description.
- REQ-3: The user must be able to contact the requester via the chat button.
- REQ-4: The admin may remove the post if deemed inappropriate.

## 5. Other Nonfunctional Requirements

### 5.1 Performance Requirements

There are no specific requirements for the performance, while there is an expectation that the system functions without long wait times and does not crash.

### 5.2 Safety Requirements

The system must not become a platform that encourages cyber crimes in any shape – whether it is cyber bullying or identity theft. Having SSO to login or having administrative approval ensures that the students on the website belong to NYU Abu Dhabi. Giving the Admin ability to delete posts and revoke user rights adds an additional layer of safety.

### 5.3 Security Requirements

As users must log in prior to using the software, there exists a base security layer. This is coupled with the usage of encryption policies while storing data, increasing the security when it comes to stored data.

### 5.4 Software Quality Attributes

The system must be reliable, i.e. it must not crash on any device with the use of any function. It must also be maintainable since it has multiple points of extension, which can be worked on if the system is adapted well. Finally, it must be robust and deal with any errors on its own, minimizing administrative involvement.